

Unique 16gr

WARNING: Since we have no control over equipment or data which may be used with this program, no responsibility is implied or assumed for results obtained through its use. Input data and results may be incorrect or wrong. Therefore the use of this data for loading ammunition can cause serious injury to personnel and material. The computer-results had to be checked against data available in current loading manuals.

LOT-TO-LOT VARIATIONS OF POWDERS, PRIMER SUBSTITUTION AND COMPONENT CHANGE OFTEN RAISE PRESSURES TO UNSAFE LEVELS. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS DATA FOR LOADING PURPOSES.

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User Data:

Date:20-mai-2023

Time:22:52:44

File: 5744 20gr.dat

Cartridge / Caliber

.577 Sld. Snider

Bullet

.58, 505, LYM LFN MINIE 575

Maximum Average Pressure, allowed

21756 psi. 1500 bar (Piezo CIP)

Groove Caliber

0,574 in. 14,58 mm

Case Capacity, overflow

114,0 gr. H₂O 7,402 cm³

Case Length

2,000 in. 50,8 mm

Cartridge O.A. Length

2,470 in. 62,74 mm

Shot Start / Init Pressure

1160 psi. 80,0 bar

Bullet Weight

505,0 gr. 32,72 gm

Bullet Length

1,080 in. 27,43 mm

Bullet Seating Depth

0,610 in. 15,49 mm

Barrel/Tube Length

30,0 in. 762,0 mm

Cross Section Area of Bore

0,25933 in.² 1,6731 cm²

Propellant type

Alliant UNIQUE

Charge Weight

16,0 gr. 1,037 gm

Heat of Explosion, Potential

294,8 J/gr. 4550 J/gm

Propellant Solid Density

412,21 gr./in.³ 1,63 gm/cm³

Burning Rate Factor Ba

2,35 1/s

Burning Function Limit Z1

0,186

Factor b

1,612

Load Density

54,6 gr./in.³ 0,216 gm/cm³

Energy Density of Charge

16076 J/in.³ 0981 J/cm³

Used Ratio of Specific Heats cp/cv

1,222

Weighting Factor

0,7

Prog.-/ Degressivity Factor a0

6,0

Bulk Density

150,0 gr./in.³ 0,593 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth

0,61 in. 15,49 mm

Useable Case Capacity

0,2936 in.³ 4,811 cm³

Loading Ratio("Density") / Filling

36,3 %

Capacity Displaced by Seated Bullet

0,1581 in.³ 2,591 cm³

Bullet Travel at Muzzle Exit

28,61 in. 726,69 mm

Charge Fraction Burnt at Shot Start

3,19 %

Predicted Data:

Maximum Chamber Pressure

13097 psi. 903 bar

Bullet Travel at Pmax

0,72 in. 18,4 mm

at Muzzle Exit:

Bullet Velocity

1202 fps. 366,5 m/s

Pressure at Muzzle

619 psi. 43 bar

Bullet Energy

1621 ft.lbs. 2198 Joule

Bullet Barrel Time

2,832 ms

Propellant Burnt

100,0 %

Ballistic Efficiency

46,6 %

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !

Real maximum (peak) of pressure is reached while bullet moves within barrel.

End of combustion reached before bullet's base passes muzzle.

